95-P-97178/13 Distributional Effects of the
Medicare Economic Index on Physicians and
Beneficiaries Appendix III
Paringer, Lynn
Urban

95-P-97178 Distributional Effects of
the Medicare Economic Index on Physicians
and Beneficiaries Appendix III

Appendix III

The Distributional Effects of the Medicare Economic Index on Physicians and Beneficiaries

Lynn Paringer

THE URBAN INSTITUTE
2100 M Street, N.W.
Washington, D.C. 20037

Project Report

This draft is not for general circulation and is not for quotation without permission of the author(s). Opinions expressed are those of the author and do not necessarily represent the views of the Urban Institute or its sponsors.

Appendix III

The Distributional Effects of the Medicare Economic Index on Physicians and Beneficiaries

Lynn Paringer

The research for this paper was supported by Grant No. 95-P-971$\overset{7}{\vee}$8/13 from the Health Care Financing Administration, USDHHS. I would like to thank my colleagues, William Scanlon, Margaret Sulvetta and John Holahan, for helpful comments on earlier drafts. Carol Hamcke provided excellent research assistance.

THE URBAN INSTITUTE
2100 M Street, N.W., Washington, D.C. 20037

Table of Contents

Page

I. Introduction 1

II. Background 4

III. Findings 8

Distribution of Program Spending Reductions from the Economic Index 14

Distribution of Medicare Services by Percent Reduction in Program Revenue Experienced by Sample Physicians 18

Distribution of Program Savings/Costs Across Beneficiaries 22

IV. Conclusions 34

I. INTRODUCTION

The Medicare Economic Index (MEI) was implemented in 1975 to limit the rate of increase in fees paid physicians by the Medicare program for services provided to beneficiaries. In 1979, payments to physicians accounted for about 22 percent of the $29.3 billion spent by the Medicare program. Between 1970 and 1979 expenditures on physicians' services rose from $1.7 billion to $6.4 billion, an average annual rate of increase of 13.6 percent per year.[1]

Medicare reimburses physicians using a reasonable, customary and prevailing charge methodology. The reasonable charge is the lowest of (1) the billed charge for the service, (2) the customary charge which is the physician's median charge for services rendered during the calendar year immediately preceding the fee screen year* and (3) the prevailing charge, which is set at the 75th percentile of all customary charges for physicians in the same specialty providing the same service in the same geographic area. Under this payment method, physicians with customary and billed charges above the 75th percentile of charges in the area would have their reasonable fee limited by the prevailing.

The MEI limits the rate of increase in prevailing charges.** Under the MEI, prevailing fees are allowed to increase by no more than an index calculated from a) changes in the general earnings levels of workers due to factors other than productivity increases and b) changes in the expenses incurred by physicians in office practice. Assuming actual prevailing charges increase at rates faster than the Medicare Economic Index, imposition of the MEI will lower prevailing charges and increase the number of physicians whose reasonable fees

---

*A physician's actual charges for services rendered January-December 1978 would be used to calculate the customary charge for services rendered during the fee screen year, July 1, 1979 to June 30, 1980.

**Pathology procedures are exempt from application of the economic index and are therefore omitted in any of the analysis that follows.

are limited by the prevailing. The impact of the MEI on any given physician will depend on the value of the physician's billed and customary charges relative to the value of the indexed prevailing charge. (Since the customary charge is equal to the value of the billed charge lagged 18 months the billed charge will usually be greater than the customary and hence the lower of the customary or prevailing charge will determine the value of the reasonable fee.)

Although the MEI, by reducing reasonable fees may reduce physicians' revenue from the program for a given service, it will not necessarily reduce the total amount which physicians receive for providing that service. Under the current program physicians have two billing options, assignment and non-assignment which may be exercised on a claim-by-claim basis.* When a physician provides a service on assignment he agrees to accept the reasonable fee as payment in full. The Medicare program is billed for 80 percent of the reasonable fee less any unpaid deductible. (In 1978 Medicare patients faced a $60 deductible before becoming eligible for program cost-sharing.) The patient is billed for the 20 percent coinsurance less any unpaid deductible. Patients treated on a non-assigned basis, pay the full billed charge to the physician. The patient in turn submits the bill to Medicare and receives 80 percent of the reasonable fee less any unpaid deductible. Assuming deductibles have been met, patient liability for assigned services is limited to 20 percent of the reasonable fee. Patient liability for non-assigned services is 20 percent of the reasonable fee plus the full amount of the difference between the billed charge and reasonable fee.

The MEI limitation, by reducing the Medicare reasonable fee, should reduce program spending for services and beneficiary spending for assigned services assuming Medicare output remains constant. Patients receiving non-assigned

---

*Elderly individuals who are eligible for both Medicaid and Medicare must be treated on an assigned basis by the physician. Services provided to these individuals are termed "mandatory assigned".

services will have their out-of-pocket costs increased as a result of the MEI. If physicians do not accept any services on assignment their revenue will be unaffected by the MEI. Revenue from the Medicare program will decline but the amount paid by the beneficiaries will offset this so that the physician will continue to receive the billed charge for services provided. Physicians who provide all of their services on an assigned basis will experience a reduction in total revenue equal to the amount by which their reasonable fee is reduced by the MEI multiplied by the number of procedures provided. Thus, the total reduction in a physician's revenue will depend on the extent to which his reasonable fee is reduced by the MEI and his willingness to assign services.

In the analysis that follows we calculate the distributional effects of the MEI on physicians and beneficiaries of services. We determine the distribution of physicians by the percent reduction in program revenue which they experience as a result of the MEI. We also calculate the distribution of Medicare beneficiaries by the percent increase (on non-assigned services) or decrease (on assigned services) in out-of-pocket spending resulting from the MEI.

Throughout our analysis, we assume that the output and mix of assigned and non-assigned services provided by physicians is constant. Only the reasonable fees change. This assumption of no behavioral changes on the part of physicians in response to the MEI could affect our estimates of the distributional effects of the MEI. If, for example, physicians reduced output to the program or provided fewer services on assignment the calculated effect of the MEI will be biased. In a later paper we examine the behavioral responses of physicians to changes in the reasonable fee. This current analysis should nevertheless provide us with a good indication of the potential magnitude and distributional effects of the MEI for a constant level of service output.

II. BACKGROUND

The data used to assess the distributional effects of the Medicare Economic Index is 1978 claims data for a sample of solo and group practice physicians in the state of California. We estimate the effect of the MEI for physicians in five specialties; general practice, general surgery, internal medicine, orthopedic surgery and ophthalmology. The number of physicians in each specialty in our solo practice sample and the number of single specialty groups used in the analysis are presented in table 1 along with the universe of physicians practicing in the state of California. For our group practice sample we do not have information on the number of physicians included in each group.

Table 1

Distribution of Physicians by Specialty

	No. of Solo Practitioners	Number of Groups	Universe of Physicians in the State
General Practitioners	1,007	225	6,102
General Surgeons	651	79	2,234
Internists	804	179	3,601
Orthopedic Surgeons	184	91	1,274
Ophthalmologists	197	54	1,091

For each of our sample providers we have all claims submitted by them to the Medicare program for each of over 470 procedures provided during the first quarter of 1978. These procedures represent about 95 percent of all services provided by our sample physicians. The claims files were provided by Blue Shield of California which is the fiscal intermediary for Medicaid and all

Medicare claims submitted by northern California physicians and Occidental which is the Medicare intermediary for physicians practicing in southern California. Included on the claims are the specific procedure number, the physicians' billed charge for the procedure and the fee which was allowed by the Medicare program. Each claim also contains a beneficiary ID number and data on the age and sex of the claimant as well as the physician's ID and the physician's specialty.

In addition to this data we also have information on each physician's customary charge for each procedure in 1978 and both the indexed and unindexed prevailing charges for the procedure. Separate prevailing charges are calculated for each of over 25 specialties in 28 PSRO areas in the state. Combining this data with our claims data we were able to calculate reasonable fees for each physician and each procedure both with (INDEXEDR) and without (UNINDEXEDR) the MEI limitation. The value of the reasonable fee was determined as follows:

$$\text{UNINDEXEDR}_{i,j} = \min(\text{ABA}_{i,j},\ \text{P}_i,\ \text{CUST}_{i,j})$$

$$\text{INDEXEDR}_{i,j} = \min(\text{ABA}_{i,j},\ \text{IP}_i,\ \text{CUST}_{i,j})$$

where

i refers to a specific procedure

j refers to a specific physician

UNINDEXEDR = constrained reasonable charge

INDEXEDR = reasonable charge as constrained by the economic index

ABA = average billed amount

P = 75th percentile of customary charges in the area and for a given specialty

IP = prevailing charge as constrained by the economic index

CUST = customary charge

To calculate program cost savings from the MEI we assumed program liability equal to 80 percent of the reasonable fee and estimated program costs with and without the MEI limitation:

$$\text{UNINDEXED PROGRAM COSTS} = \sum_{i}\sum_{j} NS_{i,j} * .8UNINDEXEDR_{i,j}$$

$$\text{ACTUAL PROGRAM COSTS} = \sum_{i}\sum_{j} NS_{i,j} * .8INDEXEDR_{i,j}$$

where $NS_{i,j}$ = number of services of procedure i provided by physician j.

Beneficiary liability is calculated separately for mandatory assigned, voluntary assigned and non-assigned services. For mandatory assigned services the Medicaid program assumes all beneficiary liability. Medicaid program costs are calculated assuming a coinsurance equal to 20 percent of the reasonable fee. For voluntary assigned claims the beneficiary is responsible for the 20 percent coinsurance rate. For non-assigned claims beneficiary liability is calculated assuming a 20 percent coinsurance rate on the reasonable fee plus the difference between the billed and reasonable fee:

$$\begin{array}{l}\text{UNINDEXED BENEFICIARY} \\ \text{COSTS-NON-ASSIGNED}\end{array} = \sum_{i}\sum_{j} NS_{i,j} * (ABA_{i,j} - .8UNINDEXEDR_{i,j})$$

$$\begin{array}{l}\text{ACTUAL BENEFICIARY} \\ \text{COSTS-NON-ASSIGNED}\end{array} = \sum_{i}\sum_{j} NS_{i,j} * (ABA_{i,j} - .8INDEXEDR_{i,j})$$

It is important throughout this paper to bear in mind that the analysis only pertains to the first quarter of 1978. Assuming the MEI increases at a rate that is below the rate of increase in actual prevailing fees, program savings from the MEI will increase from year to year and cumulative savings will be higher than the savings calculated for any single year. Also, all cost savings are calculated assuming a constant level of output and mix of services. Thus the estimated cost savings are calculated by estimating what 1978 resasonable fees would be in the absence of the MEI and applying this to actual 1978 service output.

In this paper we calculate for each physician the percent of his services for which the indexed prevailing charge is the constraining factor in determining the reasonable fee. We also determine the percent of services for which the physician would be constrained by the prevailing charge in the absence of the MEI. In addition, we estimate separately for each physician his program and beneficiary revenue both with and without the MEI and calculate the percent change in program revenue and beneficiary liability resulting from the MEI. From this we can determine how the total changes in program revenue and beneficiary liability are allocated among physicians and among the beneficiaries of services.

III. FINDINGS

One measure of the effect of the MEI on a physician's reasonable fee is the percent of his services for which the reasonable fee is equal to the indexed prevailing fee compared to the percent of services for which the reasonable fee would equal the prevailing fee in the absence of the MEI. Since the reasonable fee is the lowest of the billed amount, the customary charge and the adjusted prevailing, the adjusted prevailing would equal the reasonable fee only if both the billed amount and the customary charge were greater than or equal to the adjusted prevailing.

Table 2 presents data on the distribution of our sample solo practitioners by the percent of services paid at the adjusted prevailing for medical services, surgical services and radiology services for five specialties. The number of physicians with a positive amount of output are listed in the left column and the percent distribution of the sample physicians are based only on those with a positive amount of output to Medicare. The first line represents the percent of physicians whose reasonable fee would equal the prevailing on the specified percentage of services in the absence of the MEI limitation. The second line is the percent distribution of physicians whose reasonable equalled the actual prevailing on a given proportion of services.* For example, 12.3 percent of solo practice general practitioners never had their reasonable fees constrained by the prevailing charge. In the absence of the MEI, 16.1 percent would have never had their reasonable fees constrained by the prevailing. By contrast, 44.4 percent of solo practice general practitioners had at least 50 percent of their reasonable fees constrained by the MEI. Without the index only 32.6 percent would have been so constrained. The

---

*It is important to bear in mind that the MEI only affects the reasonable fees of physicians and not necessarily their revenue. If physicians do not accept services on assignment the economic index will affect program costs but not physician revenue.

Table 2

Distribution of Solo Practice Physicians by Percent of Services
Paid at the Prevailing Charge
Without Index
With Index

	Number With >0 Services	0%	0-5%	5-10%	10-15%	15-25%	25-50%	50-75%	75-85%	85-99%	100%
General Practitioners											
Total	806	16.1	18.7	8.6	4.8	6.0	13.2	12.9	5.1	12.0	2.6
		12.3	13.9	8.4	5.5	5.1	10.4	14.9	6.2	18.5	4.8
Medicine	799	19.9	16.1	8.0	4.6	5.9	11.6	11.9	5.8	12.6	3.5
		15.5	12.3	7.3	4.8	5.2	10.1	13.1	6.3	19.4	6.0
Surgery	606	47.9	.7	2.1	4.5	7.6	15.3	7.8	1.8	1.5	10.9
		31.0	.5	3.1	3.5	7.8	18.8	12.9	3.5	3.1	15.8
Radiology	289	46.7	3.1	3.8	3.8	4.5	6.9	8.0	2.4	5.5	15.2
		40.5	3.4	3.1	3.8	6.2	5.9	8.7	3.5	5.2	19.7
General Surgeons											
Total	509	15.5	11.8	6.1	4.1	8.4	18.5	17.7	6.1	9.6	2.2
		7.3	8.6	4.5	4.3	7.3	17.1	19.4	7.5	18.9	5.1
Medicine	496	23.4	7.9	6.3	2.6	6.9	15.5	13.7	6.2	12.1	5.8
		16.3	6.5	4.0	2.8	5.8	15.1	15.5	5.6	16.5	11.7
Surgery	455	34.1	1.5	5.1	4.2	8.1	17.1	11.0	4.0	3.3	11.6
		14.9	1.1	2.2	2.0	5.3	19.1	18.0	7.5	8.4	2.2
Internists											
Total	654	9.2	19.4	9.0	6.0	6.6	14.4	12.1	6.0	13.6	3.8
		6.1	14.7	8.1	4.0	6.4	14.2	13.8	6.9	19.9	6.0
Medicine	650	11.4	18.6	8.5	6.0	6.0	14.6	11.4	5.2	14.3	4.0
		7.8	14.3	7.7	4.0	5.5	14.3	13.2	5.8	20.8	6.5
Surgery	389	52.4	1.3	18.0	1.3	3.3	10.5	7.5	2.1	2.3	17.5
		37.3	1.0	1.3	2.1	4.1	12.9	11.1	3.3	4.4	22.6
Radiology	222	35.6	3.6	2.3	.9	1.4	3.6	5.0	4.5	5.9	37.4
		34.2	3.2	1.8	.9	.5	.3	5.0	5.0	7.7	38.7
Orthopedic Surgeons											
Total	162	12.3	8.0	7.4	8.0	12.3	22.2	14.2	6.8	6.8	1.9
		9.3	3.7	3.7	3.7	8.6	28.4	21.0	7.4	11.1	3.1
Medicine	159	25.8	8.8	3.1	6.3	7.5	15.7	8.8	6.9	10.1	6.9
		15.7	8.8	3.1	3.8	7.5	17.0	13.2	6.9	12.6	11.3
Surgery	144	29.2	2.1	8.3	4.9	13.2	18.1	11.1	4.1	0	9.0
		19.4	0.0	5.6	6.3	6.9	20.1	16.0	6.3	5.6	13.9
Radiology	108	27.8	.9	7.4	4.6	10.2	21.3	12.0	4.6	5.6	5.6
		18.5	1.9	5.6	4.6	11.1	16.7	15.7	7.4	8.3	10.2
Ophthalmologists											
Total	184	14.7	11.4	8.2	6.5	10.3	17.9	15.2	7.6	6.5	1.6
		10.9	11.4	8.2	2.2	7.6	22.3	16.3	9.8	9.2	2.2
Medicine	183	21.9	9.3	6.6	6.0	7.7	17.5	13.7	7.1	8.7	1.6
		16.4	10.4	4.9	2.7	6.6	20.8	15.8	9.8	9.3	2.7
Surgery	161	48.4	.6	3.1	1.9	5.0	12.4	8.7	4.3	5.0	10.6
		36.0	.6	1.2	3.1	7.5	9.9	11.2	5.0	8.7	16.8

extent to which general practitioners' services were constrained by the MEI varied by procedure category. Without the MEI, 47.9 percent of general practitioners would have always had reasonable fees below the prevailing fee for surgical procedures. As a result of the MEI only 31.0 percent of general practitioners always had reasonable fees below the level of prevailings for these procedures. On medicine procedures, only 15.5 percent of physicians were never constrained by the prevailing. Without the MEI, 19.9 percent would never have been constrained by the prevailing. About one-third of general practitioners would have had their reasonable fees for medical procedures constrained at least 50 percent of the time without the MEI constraint. With the index limitation on prevailing fees 45 percent had their reasonable fees constrained by the MEI at least 50 percent of the time.

The results for solo practice general surgeons indicate that 7.3 percent of physicians never had their reasonable fees constrained by the indexed prevailing, a somewhat lower proportion than what was found for general practitioners. Without the MEI, over twice as many physicians would have never had their prevailings constrained by the MEI. Over one-half of the sample had reasonable fees limited by the prevailing at least 50 percent of the time. In the absence of the MEI 35 percent of general surgeons would have been in this category.

Of the specialties examined in this paper, internists were the most likely to experience a limitation in reasonable fees due to the prevailing charge. Only 6.1 percent of internists never had their reasonable fees constrained by the MEI. In the absence of the MEI this would have been true for 9.2 percent of internists. Internists were most likely to be constrained for medical procedures and least likely to be constrained for surgical procedures.

7.8 percent of internists were never constrained by the prevailing charge on medical procedures while 46.3 percent were constrained at least 50 percent of the time. In the absence of the MEI 11.4 percent would have never been limited by the prevailng charge and 35 percent would have been constrained at least 50 percent of the time. MEI limitations on reasonable fees experienced by orthopedic surgeons were similar to that experienced by other specialties. 9.3 percent were always paid by the program at levels below the indexed prevailing charge and 12.3 percent of physicians would have been in this category in the absence of the MEI. Orthopedic surgeons were more likely than either general practitioners or internists to have reasonable fees for surgical procedures limited by the prevailing charge. 41.8 percent of orthopedic surgeons had their reasonable fees for surgical procedures limited by the MEI at least 50 percent of the time. 24.2 percent would have been in this category in the absence of the MEI.

Ophthalmologists were slightly less likely than internists or surgeons to have their reasonable fees limited by the MEI. 10.9 percent of ophthalmologists never had their reasonable fees limited by the MEI while 37.5 percent were limited at least 50 percent of the time. In the absence of the MEI 14.7 percent would have never been constrained and 30.9 percent would have been limited at least 50 percent of the time.

A comparison of the group practice physicians (Table 3) with the solo practice physicians reveals that those practicing in groups were somewhat more likely than the solos to have their reasonable fees constrained by the MEI. 4.5 percent of general practice groups were never limited by the MEI compared to 12.3 percent of solo practice physicians. A similar comparison applies

Table 3

Distribution of Groups by Percent of Services Paid at the Prevailing Fee
Without Index
With Index

	Number With >0 Services	0%	0-5%	5-10%	10-15%	15-25%	25-50%	50-75%	75-85%	85-99%	100%
General Practitioners											
Total	221	6.3	19.0	8.1	5.4	8.6	12.7	14.5	10.0	12.2	3.2
		4.5	14.9	6.8	3.6	8.6	11.3	14.9	14.0	16.7	4.5
Medicine	218	9.1	17.0	9.2	3.7	9.2	9.6	14.2	6.9	14.7	6.4
		6.4	15.1	5.5	2.8	9.2	8.7	16.1	7.3	20.2	8.7
Surgery	174	37.4	1.1	5.2	1.1	7.5	23.0	9.8	5.2	2.3	7.5
		24.1	1.7	2.3	3.5	9.2	19.0	14.4	8.6	5.8	10.9
Radiology	171	30.4	10.5	10.5	4.1	8.2	6.4	9.9	4.7	7.0	8.2
		21.1	11.1	9.4	7.0	11.1	8.8	8.2	5.3	7.0	11.1
General Surgeons											
Total	77	5.2	5.2	11.7	7.8	7.8	20.8	27.3	3.9	10.4	0.0
		3.9	2.6	5.2	3.9	14.3	16.9	33.8	5.2	14.3	0.0
Medicine	77	9.1	9.1	6.5	9.1	7.8	19.5	19.5	6.5	13.0	0.0
		7.8	5.2	5.2	10.4	3.9	22.1	26.0	5.2	13.0	1.3
Surgery	73	13.7	5.5	13.7	5.5	11.0	21.9	13.7	6.8	4.1	4.1
		2.7	0.0	4.1	1.4	11.0	26.0	26.0	11.0	12.3	5.5
Internists											
Total	186	5.4	15.6	9.1	8.1	7.0	16.1	12.9	8.1	14.5	3.2
		2.7	10.8	7.5	4.3	8.1	14.5	18.8	7.0	20.4	5.9
Medicine	184	5.4	17.4	.9	7.6	6.5	14.1	13.6	7.1	15.2	3.8
		2.7	12.5	7.6	3.8	6.5	13.0	18.5	6.5	21.2	7.6
Surgery	149	35.6	6.7	7.4	2.0	8.7	15.4	10.7	1.3	6.0	12.1
		22.2	1.3	5.4	4.7	9.4	14.1	18.8	2.0	6.0	16.1
Radiology	109	22.9	12.8	3.7	.9	1.8	4.6	11.0	3.7	10.1	28.4
		22.0	11.0	4.6	.9	1.8	3.7	9.2	3.7	11.9	31.2
Orthopedic Surgeons											
Total	98	12.3	8.0	7.4	8.0	12.3	22.2	14.2	6.8	6.8	1.9
		2.0	2.0	5.1	4.1	10.2	21.4	32.7	7.1	14.3	1.0
Medicine	97	11.3	10.3	30.9	41.2	8.2	18.6	20.6	9.3	13.4	1.0
		6.2	9.3	2.1	3.1	5.2	14.4	22.7	10.3	21.7	5.2
Surgery	95	5.3	6.3	5.3	6.3	17.9	26.3	20.0	3.1	5.3	5.3
		3.2	1.1	3.2	2.1	8.4	23.2	15.8	12.6	21.1	9.5
Radiology	90	17.8	8.9	3.3	5.6	8.9	17.8	18.9	7.8	5.6	5.6
		14.4	7.8	4.4	3.3	6.7	15.6	17.8	8.9	12.2	8.9
Ophthalmologists											
Total	62	9.7	19.4	1.6	6.5	12.9	14.5	19.4	9.7	6.5	0.0
		8.1	12.9	3.2	4.8	8.1	16.1	25.8	14.5	6.5	0.0
Medicine	62	16.1	12.9	3.2	6.5	11.3	14.5	17.7	9.7	6.5	1.6
		12.9	8.1	6.5	3.2	6.5	17.7	21.0	14.5	8.1	1.6
Surgery	57	31.6	3.5	1.8	8.8	8.8	12.3	21.1	5.3	5.3	1.7
		24.6	0.0	5.3	3.5	7.0	12.3	24.6	3.5	10.5	8.8

across all of the specialties examined. Group practice physicians were also somewhat more likely than solo practice physicians to be constrained by the MEI at least 50 percent of the time.

Among general practitioners, medical procedures were most affected by the MEI. Only 6.4 percent of the groups did not have reasonable fees for medical procedures affected by the MEI. Over 50 percent of the general practice groups had their reasonable fees constrained at least half of the time for medical procedures. In the absence of the MEI 42.2 percent would have had their reasonable fees limited at least 50 percent of the time and 9.1 percent would have never had their reasonable fees limited by the prevailing charge.

Among general surgery groups, fees for surgical procedures were most likely to be affected by the MEI. Only 2.7 percent of general surgery groups never had reasonable fees for surgical procedures limited by the MEI compared to 13.7 percent who would not have been limited in the absence of the MEI. Over one half of general surgeons had reasonable fees for surgery limited more than 50 percent of the time.

Like their solo practice counterparts, internists practicing in groups were most likely to have their reasonable fees constrained by the MEI for medical procedures. Less than three percent never had their reasonable fees for medical procedures limited by the MEI and nearly 30 percent were limited at least 85 percent of the time. For surgical procedures internists were the least likely of any specialty to have their reasonable fees constrained by the MEI.

Group practice orthopedic surgeons were somewhat more likely than their solo practice counterparts to have their reasonable fees limited by the MEI. Only 2.0 percent of the groups never had their reasonable fees limited by the indexed prevailing compared to 9.3 percent of the solo practice physicians. For every type of procedure category the group practice physicians were more likely to be constrained by the MEI than the solo practice physicians. This same finding applies to ophthalmologists; 8.1 percent of the groups were never limited by the MEI compared to 10.9 percent of the solo practice physicians. Ophthalmologists were somewhat less likely than internists or general practitioners to have their reasonable fees for medical procedures limited by the MEI. They were also less likely than surgeons to have their reasonable fees for surgical procedures limited by the MEI.

Distribution of Program Spending Reductions Resulting From the Economic Index

The distribution of program savings across providers displays another indication of the differential impact which the MEI had on the reasonable fees of our sample physicians. Table 4 shows the level of program spending per physician in the absence of the MEI and the cost savings resulting from imposition of the MEI. We calculated separately for each physician what his program revenue would be both with and without the MEI constraint and from this calculated the percent reduction in a physician's program revenue resulting from the economic index. The cumulative percent distribution of solo practice physicians by the percent reduction in program revenue resulting from the economic index is also shown in Table 4. The same information for group practice physicians is presented in Table 5.

Table 4

Cumulative Percent Distribution of Solo Practice by Extent of Program Spending Reductions Resulting from the Economic Index (Cumulative Percent Reduction in Revenues Received Directly by the Program)

	Number With >0 Services	0%	<5%	<10%	<15%	<20%	<50%	Program Expenditures Per Physician in Absence of Index	Program Expenditure Reductions for Physician
eneral Practitioners									
Total	806	20.1	76.8	95.0	98.1	99.5	100.0	$ 3,657.59	$109.19
Medicine	799	25.5	76.2	94.7	98.4	99.4	100.0	3,371.56	98.99
Surgery	606	41.1	72.4	87.0	94.4	97.5	100.0	269.55	12.57
Radiology	289	59.2	89.6	95.5	98.6	100.0	100.0	314.19	4.47
eneral Surgeons									
Total	509	12.8	55.6	83.3	96.7	99.8	100.0	3,791.77	200.18
Medicine	496	27.8	71.8	89.5	96.4	99.8	100.0	1,513.63	60.16
Surgery	455	19.1	51.9	75.0	92.7	98.0	100.0	2,568.38	144.42
nternists									
Total	654	14.1	79.2	94.5	98.3	99.8	100.0	7,767.96	222.74
Medicine	650	17.2	79.4	94.8	98.3	99.8	100.0	7,494.54	216.22
Surgery	389	50.4	77.1	87.4	94.1	97.4	100.0	248.17	9.91
Radiology	222	72.1	91.4	97.3	98.6	99.1	100.0	505.67	5.75
rthopedic Surgeons									
Total	162	13.0	51.2	82.1	95.3	98.8	100.0	4,539.10	280.25
Medicine	159	18.0	75.5	91.2	96.9	98.1	100.0	1,202.86	47.99
Surgery	144	22.2	44.4	72.2	88.2	95.8	100.0	3,288.63	251.28
Radiology	108	33.3	81.4	96.3	99.1	100.0	100.0	652.69	14.69
phthalmologists									
Total	184	25.5	86.4	96.2	98.9	100.0	100.0	7,243.03	183.60
Medicine	183	38.8	89.0	96.7	99.5	100.0	100.0	2,686.70	44.86
Surgery	161	44.1	78.3	88.8	95.7	99.4	100.0	5,222.62	158.81

Table 5

Cumulative Percent Distribution of Group Practice Physicians by Extent of Program Spending Resulting from the Economic Index
(Cumulative Percent Reduction in Revenues Received Directly by the Program)

	Number With >0 Services	0%	<5%	<10%	<15%	<20%	<50%	Expenditures Per Group in Absence of Index	Expenditure Reductions Per Group
General Practitioners									
Total	221	12.2	79.6	96.4	98.2	100.0	100.0	$ 8,358.24	272.72
Medicine	218	18.3	78.4	94.0	97.7	99.5	100.0	7,360.78	240.09
Surgery	174	31.6	70.1	87.4	95.4	98.9	100.0	577.27	31.90
Radiology	171	36.8	91.8	97.1	98.8	199.4	100.0	830.85	13.93
General Surgeons									
Total	77	6.5	61.0	92.2	98.7	100.0	100.0	13,241.23	524.25
Medicine	77	18.2	81.8	98.7	98.7	100.0	100.0	4,250.77	104.74
Surgery	73	6.8	45.2	83.6	97.2	100.0	100.0	9,105.85	429.90
Internists									
Total	186	8.1	75.3	94.1	99.5	100.0	100.0	25,390.17	803.99
Medicine	184	11.4	74.5	92.9	98.9	100.0	100.0	23,963.20	786.66
Surgery	149	38.9	83.9	91.9	97.3	99.3	100.0	669.04	20.87
Radiology	109	56.9	90.1	95.4	99.1	100.0	100.0	1,960.15	15.46
rthopedic Surgeons									
Total	98	4.1	34.7	83.7	98.0	100.0	100.0	18,233.70	1,167.06
Medicine	97	10.3	57.7	84.5	96.9	100.0	100.0	5,119.90	268.27
Surgery	95	52.6	29.5	62.1	90.5	98.9	100.0	11,040.51	850.05
Radiology	90	18.9	80.0	90.0	96.7	100.0	100.0	2,308.88	62.05
hthalmologists									
Total	62	17.7	93.5	100.0	100.0	100.0	100.0	16,711.35	239.18
Medicine	62	30.6	93.5	100.0	100.0	100.0	100.0	6,674.71	96.98
Surgery	57	47.4	87.7	98.2	100.0	100.0	100.0	10,884.91	152.19

One fifth of our sample solo general practitioners did not experience any reduction in program revenue as a result of the MEI. Over three-fourths of our sample physicians experienced revenue reductions less than or equal to five percent. Total cost savings from the MEI for all solo practice general practitioners was about three percent of unindexed program costs. Among general surgeons the percent that did not experience any reduction in program revenue as a result of the MEI was 12.8 percent. This was true for 14.1 percent of internists, 13.0 percent of orthopedic surgeons and 25.5 percent of ophthalmologists. Not only were general and orthopedic surgeons more likely to experience program revenue reductions than general practitioners but a higher proportion of physicians in these specialties experienced program revenue reductions of greater than 10 percent. 16.7 percent of general surgeons and 17.9 percent of orthopedic surgeons experienced program revenue reductions exceeding 10 percent compared to only 5 percent of general practitioners.

For medical procedures, ophthalmologists were least likely to experience program revenue reductions as a result of the MEI. Nearly 40 percent of ophthalmologists did not have their program revenue affected by the MEI compared to about one-fourth of general practitioners and general surgeons and less than one-fifth of internists and orthopedic surgeons.

The distribution of physicians by percent of program revenue lost on surgical procedures was somewhat different than the result for medical procedures. 41.1 percent of general practitioners experienced no loss in program revenue from surgical procedures as a result of the MEI. This was true for 19.1 percent of surgeons, 50.4 percent of internists, 22.2 percent of orthopedic surgeons, and 44.1 percent of ophthalmologists. While a larger

proportion of physicians experienced no loss of program revenue from surgical procedures than was true for medical procedures, a larger percent also experienced program revenue losses in excess of 10 percent. 13.0 percent of general practitioners had their program revenues from surgical procedures reduced by at least 10 percent as a result of the MEI. This was true for 25.0 percent of general surgeons, 12.6 percent of internists, 27.8 percent of orthopedic surgeons, and 11.2 percent of ophthalmologists. Thus, the savings in program revenue resulting from imposition of the MEI on surgical procedures fell disproportionately on some physicians while a sizeable fraction was completely unaffected.

The distribution of program revenue reductions among our group physicians was somewhat different than the results for the solo practice physicians. In general, a smaller proportion of group practice physicians experienced no reductions in program revenue from the MEI than was true of the solo practice physicians. Group practice general surgeons were somewhat more likely than their solo practice counterparts to experience program revenue reductions of 10 percent or more from the MEI. The proportion of physicians in the other specialties falling in this group compared favorably to the solo practice physicians.

Distribution of Medicare Services by Percent Reduction in Program Revenue Experienced by Sample Physicians

In the previous section we calculated the distribution of program revenue reductions resulting from the MEI across our sample providers. In this section we assess the distribution of output among physicians by the extent to which the physician's revenue from the Medicare program was reduced by the MEI.

Table 6 indicates that 11.8 percent of the services of solo practice general practitioners were provided by the 20.1 percent of physicians who experienced no reductions in program revenue from the MEI. Similarly, although 12.8 percent of solo practice general surgeons were not affected by the MEI, they accounted for 7.7 percent of total output by our sample general surgeons. The 14.1 percent of internists not affected by the MEI accounted for 9.9 percent of internists' service output. The findings for orthopedic surgeons and ophthalmologists were similar. The majority of services were provided by physicians who experienced a reduction in program revenue of less than 5 percent due to the MEI. Only 3.8 percent of services were provided by the 5 percent of solo practice general practitioners who experienced a reduction in program revenue of 10 percent or more. 16.7 percent of general surgeons had their program revenues reduced by 10 percent or more from the MEI and they accounted for 11.6 percent of the services. Orthopedic surgeons ranked highest on this count, 15.8 percent of services were supplied by physicians who experienced a program revenue loss of 10 percent or more.

The distribution of services for assignment and non-assignment was quite different for the solo practice physicians. 25.6 percent of mandatory assigned services and 32.9 percent of voluntary assigned services were provided by general practice physicians who experienced no program revenue reduction from mandatory and voluntary assignment respectively. In contrast, only 13.9 percent of non-assigned services were provided by general practice physicians whose program revenue from non-assignment was not reduced by the MEI. It is likely that physicians who provide a large number of services on a non-assignment basis have higher billed charges and prevailings than physicians who provide large amounts of services on assignment. Thus, these

Table 6

Distribution of Medicare Services by Percent Reduction in Program Revenue Experienced by Physicians as a Result of the Index (Cumulative Percent Reduction in Program Revenue)

	Solo Practice Physicians						Group Practice Physicians					
	Total Services	0%	<5%	<10%	<15%	<20%	Total Services	0%	<5%	<10%	<15%	<20%
General Practitioners	219,120	11.8	78.4	96.2	98.9	99.9	127,691	5.3	77.3	94.9	98.3	100.0
Mandatory Assigned	74,851	25.6	76.7	95.9	98.3	99.9	58,480	10.1	74.8	92.9	98.0	100.0
Voluntary Assigned	19,832	32.9	83.2	96.0	98.9	99.5	10,775	.4	88.3	96.8	99.4	100.0
Non-Assigned	124,438	13.9	76.7	94.2	98.9	99.8	58,439	6.8	77.6	96.2	98.6	100.0
General Surgeons	54,433	7.7	58.2	88.4	97.5	99.8	22,209	.7	79.9	97.5	99.5	100.0
Mandatory Assigned	18,791	14.0	53.0	85.3	94.5	99.3	5,612	3.4	83.6	96.9	99.4	100.0
Voluntary Assigned	9,053	22.4	64.7	92.7	97.3	99.9	4,927	5.9	76.4	91.1	99.8	100.0
Non-Assigned	26,589	8.8	61.4	88.2	97.2	99.9	11,672	2.4	73.4	97.4	99.3	100.0
Internists	298,871	9.9	80.1	95.4	99.0	100.0	250,356	.9	80.9	95.1	98.6	100.0
Mandatory Assigned	72,308	20.7	83.2	93.1	97.9	100.0	60,929	4.9	79.2	92.5	96.7	100.0
Voluntary Assigned	36,885	25.8	77.4	91.4	98.5	99.1	49,508	2.9	76.5	92.6	99.0	100.0
Non-Assigned	189,679	12.3	80.2	96.2	99.8	100.0	139,920	.9	81.0	94.9	98.7	100.0
Orthopedic Surgeons	17,311	4.2	49.9	84.2	98.2	99.8	43,732	.1	30.1	88.3	98.5	100.0
Mandatory Assigned	4,370	7.6	58.4	87.9	93.3	99.9	8,759	1.0	43.0	78.8	98.2	100.0
Voluntary Assigned	2,713	19.1	61.4	81.7	97.5	99.6	6,396	.6	33.7	80.6	97.3	99.7
Non-Assigned	10,230	6.2	56.4	83.5	96.5	100.0	28,579	.1	31.0	85.5	100.0	100.0
Ophthalmologists	32,516	16.9	87.4	95.7	98.8	100.0	26,489	7.6	93.3	100.0	100.0	100.0
Mandatory Assigned	7,482	31.0	80.4	89.9	92.4	100.0	6,393	3.9	98.0	100.0	100.0	100.0
Voluntary Assigned	2,150	41.3	87.5	97.0	99.2	100.0	2,977	22.7	98.4	100.0	100.0	100.0
Non-Assigned	22,887	18.3	89.1	95.8	99.3	100.0	17,118	9.0	87.8	100.0	100.0	100.0

higher priced physicians are more likely to have their reasonable fees reduced by the MEI. However, if these physicians are also those with the lowest assignment rates, the total revenue they receive from treating Medicare patients may be unaffected by the index. 8.8 percent of non-assigned services were provided by general surgeons whose program revenue from non-assignment was not constrained by the index. This was true for 12.3 percent of the services of internists, 6.2 percent of orthopedic surgeons′ services and 18.3 percent of ophthalmologists′ services. The pattern for voluntary assigned services among these specialties was similar to the pattern for general practitioners. 22.4 percent of general surgeons′ voluntary assigned services were provided by physicians whose voluntary assigned revenue was not reduced by the MEI; 25.8 percent of internists′ services fell into this category as did 19.1 percent of orthopedic surgeons′ services and 41.3 percent of ophthalmologists′ services.

In general, a much smaller fraction of the service output from group physicians was provided by physicians whose program revenue from Medicare was not constrained by the MEI. 5.3 percent of the services of general practitioners were provided by physician groups whose program revenue was not reduced by the MEI. This was true for less than 1 percent of the services of general surgeons, internists and orthopedic surgeons and 7.6 percent of ophthalmologists′ output. The differential pattern for assigned and non-assigned services among the group sample was similar to the solo practice sample.

From our tables we can tell that physicians who were not affected by the MEI tended to have a lower level of output than those whose revenue was constrained by the index. The majority of services were provided by physicians who experienced less than a 5 percent reduction in program revenue

as a result of the MEI. This was true for both the solo practice sample and the group sample. Finally, the non-assigned output was more likely to be provided by physicians who experienced some constraint as a result of the MEI than was the assigned output. In the following section we will look at the distributional effects of the MEI across beneficiaries of services.

Distribution of Program Savings/Costs Across Beneficiaries

Like physicians, beneficiaries of services may be differentially affected by the imposition of the MEI. Beneficiaries receiving services on non-assignment experience increased costs for services due to the MEI while those receiving services on voluntary assignment will have their out-of-pocket costs reduced and Medicaid spending on behalf of joint Medicare/ Medicaid eligibles will also decline. However, even within these categories, savings or costs may fall disproportionately across the recipient population. Tables 7 and 8 present the distribution of joint Medicare/Medicaid eligibles by the percent reduction in Medicaid revenue to physicians resulting from the MEI.*

About one-fourth of the patients of general practitioners received services from physicians whose mandatory assigned revenue was not affected by the MEI. This was true for 15.9 percent of the patients of general surgeons, 23.1 percent of internists' patients, 9.4 percent of orthopedic surgeons' patients and 31.2 percent of the patients of ophthalmologists. In general, a larger proportion of patients received services from solo practice physicians

---

*Patients are distributed in the following manner: if Medicaid revenue to a physician was not affected by the MEI, then the number of patients seen by that physician were allocated to the 0% cost saving category. Similarly, if a physician experienced a 25-50% reduction in Medicaid revenue, his total joint eligible patient load was allocated to this group.

Distribution of Mandatory Assigned Patients by Percent Reduction in Medicaid Program Costs Resulting From the Economic Index
(Solo Practice Sample)

	Total Patients	0%	<5%	<10%	<15%	<20%	<50%	Expenditures Per Patient	Savings Per Patient
General Practitioners									
Total	25,090	26.6	74.6	95.5	98.1	99.9	100.0	$ 9.64	$ .28
Office Visits	19,076	49.6	74.3	94.2	97.9	98.6	100.0	6.63	.17
Hospital Visits	1,929	47.4	75.3	90.9	95.6	96.6	100.0	29.73	.90
Surgery	1,402	49.6	70.3	84.7	94.1	97.6	100.0	5.67	.32
Radiology	992	59.6	92.5	97.1	99.1	100.0	100.0	5.62	.08
General Surgeons									
Total	7,538	15.9	53.3	82.8	93.1	98.9	100.0	17.03	.99
Office Visits	4,731	35.7	59.8	82.3	87.8	96.0	100.0	6.29	.31
Hospital Visits	820	45.6	72.2	85.6	94.0	98.0	100.0	28.66	1.11
Surgery	1,932	30.2	59.8	76.5	91.1	96.2	100.0	31.26	2.22
Internists									
Total	19,324	23.1	83.6	93.2	97.6	99.9	100.0	15.57	.44
Office Visits	14,075	48.7	83.5	92.7	98.8	100.0	100.0	7.79	.18
Hospital Visits	3,228	45.5	77.2	91.4	96.6	99.3	100.0	40.16	1.31
Surgery	531	49.9	71.4	83.2	92.5	97.0	100.0	8.82	.37
Radiology	882	77.4	93.3	99.8	99.8	100.0	100.0	5.65	.08
Orthopedic Surgery									
Total	1,720	9.4	58.5	87.3	92.6	99.9	100.0	26.10	1.73
Office Visits	1,024	46.0	63.0	77.5	97.2	98.9	100.0	5.65	.26
Surgery	518	24.1	49.6	83.2	88.0	96.5	100.0	54.36	4.58
Radiology	525	34.7	83.3	94.9	98.1	100.0	100.0	8.13	.21
Ophthalmologists									
Total	5,200	31.2	80.2	91.8	93.5	100.0	100.0	13.54	.40
Office Visits	3,073	66.4	86.0	93.1	96.1	96.1	100.0	4.36	.11
Surgery	705	43.7	83.4	87.9	91.5	100.0	100.0	62.43	2.03

Table 8

Distribution of Mandatory Assigned Patients by Percent Reduction in Program Costs Resulting From the Economic Index (Group Practice Sample)

	Total Patients	0%	<5%	<10%	<15%	<20%	<50%	Expenditures Per Patient	Savings Per Patient
General Practitioners									
Total	16,602	11.7	73.2	92.4	98.0	100.0	100.0	$12.63	$ .42
Office Visits	13,694	49.9	68.9	87.0	93.3	96.9	100.0	7.58	.27
Hospital Visits	1,390	47.5	79.7	92.4	97.6	100.0	100.0	40.12	1.08
Surgery	948	31.6	62.8	82.3	91.1	94.9	100.0	7.16	.43
Radiology	2,346	28.0	92.9	97.9	98.5	100.0	100.0	6.90	.18
General Surgeons									
Total	2,380	6.2	79.6	95.7	99.4	100.0	100.0	23.86	.88
Office Visits	1,305	38.5	78.4	96.4	98.2	100.0	100.0	7.42	.14
Hospital Visits	290	56.9	81.7	94.1	95.9	99.0	100.0	27.11	.59
Surgery	750	8.5	61.5	92.8	99.5	99.5	100.0	43.76	2.16
Internists									
Total	13,227	5.7	80.3	93.6	97.3	100.0	100.0	21.08	.66
Office Visits	9,117	31.4	81.1	98.1	99.6	100.0	100.0	8.09	.21
Hospital Visits	3,321	28.8	75.3	92.1	94.5	97.5	100.0	43.64	1.56
Surgery	491	38.9	82.7	89.6	96.7	98.0	100.0	10.24	.39
Radiology	1,369	51.6	91.8	96.1	100.0	100.0	100.0	6.60	.09
Orthopedic Surgery									
Total	3,202	1.1	42.6	80.9	97.6	100.0	100.0	28.64	1.82
Office Visits	2,025	19.8	57.0	80.5	90.5	97.1	100.0	6.55	.34
Surgery	1,002	9.8	39.1	74.9	86.0	98.2	100.0	54.53	4.24
Radiology	1,289	30.6	77.9	90.5	95.3	100.0	100.0	8.28	.29
Ophthalmologists									
Total	4,421	17.8	97.8	100.0	100.0	100.0	100.0	12.84	.15
Office Visits	3,175	64.3	94.6	99.9	100.0	100.0	100.0	4.00	.03
Surgery	428	42.3	90.7	100.0	100.0	100.0	100.0	77.20	.75

whose Medicaid revenue was unaffected by the MEI than was true of patients who received services from group practice physicians. Only 11.7 percent of patients received services from group practice general practitioners who were unaffected by the MEI. This was true for only 6.2 percent of the patients of general surgeons and 5.7 percent of internists' patients.

A relatively small proportion of patients received services from physicians whose reduction in revenue from joint Medicare/Medicaid beneficiaries was greater than 10 percent. 4.5 percent of the patients of solo practice general practitioners received services from physicians whose revenue from mandatory assigned services was reduced by more than 10 percent from the MEI. This was true for 17.2 percent of general surgeons' patients, 6.8 percent of internists' patients, 12.7 percent of orthopedic surgeons' patients and 8.2 percent of the patients of ophthalmologists. The patients of group practice physicians were somewhat less likely than the patients of solo practice physicians to receive care from a doctor whose revenue from mandatory assignment was reduced by at least 10 percent from the MEI. Thus, the patients of solo practice physicians were distributed more heavily at the extreme ends of the cost reduction than were the patients of the group practice physicians.

Tables 9 and 10 present the distribution of voluntary assigned patients by the percent reduction in voluntary assigned revenue received by physicians in the five specialties and the reduction in out-of-pocket cost per patient. The savings per patient during the first quarter of 1978 ranged from $.40 per patient for the patients of general practitioners to $2.44 for the patients of orthopedic surgeons. A relatively large fraction of voluntary assigned patients received services from physicians whose revenue was unaffected by the MEI. This was true of 33.8 percent of the patients of solo

Table 9

Distribution of Voluntary Assigned Patients by Percent Reduction in Beneficiary Liability Resulting From the Economic Index
(Solo Practice Sample)

	Total Patients	0%	<5%	<10%	<15%	<20%	<50%	Expenditures Per Patient	Savings Per Patient*/
General Practitioners									
Total	4,482	33.8	81.6	96.2	99.0	99.5	100.0	$15.69	$ .40
Office Visits	3,296	56.6	80.2	96.5	97.5	98.6	100.0	7.33	.15
Hospital Visits	955	57.8	82.9	93.9	97.2	99.6	100.0	35.39	1.01
Surgery	568	69.7	86.3	93.5	97.9	98.6	100.0	5.44	.18
Radiology	249	74.7	95.2	96.8	98.0	100.0	100.0	6.06	.09
General Surgeons									
Total	3,608	22.0	61.8	88.5	96.7	99.8	100.0	25.37	1.14
Office Visits	1,866	45.8	65.0	87.7	95.7	98.9	100.0	6.70	.24
Hospital Visits	562	61.0	79.5	93.4	96.8	99.5	100.0	26.74	.77
Surgery	1,550	36.6	64.9	83.0	92.4	97.7	100.0	36.91	1.96
Internists									
Total	7,075	28.5	78.7	93.9	98.5	99.6	100.0	23.61	.78
Office Visits	4,792	61.0	85.1	96.5	98.6	100.0	100.0	8.32	.15
Hospital Visits	2,117	46.4	74.2	87.7	96.0	99.3	100.0	45.92	1.85
Surgery	324	54.0	68.5	75.6	83.6	92.6	100.0	7.92	.45
Radiology	432	70.8	79.4	98.1	100.0	100.0	100.0	6.21	.13
Orthopedic Surgery									
Total	975	21.7	60.0	82.1	96.5	99.6	100.0	37.84	2.44
Office Visits	527	51.2	72.7	85.8	91.7	99.6	100.0	5.87	.20
Surgery	379	28.8	52.8	79.9	93.7	94.5	100.0	69.50	5.13
Radiology	304	42.4	86.2	99.0	100.0	100.0	100.0	8.01	.15
Ophthalmologists									
Total	1,465	44.8	89.6	96.2	99.4	100.0	100.0	31.35	.79
Office Visits	705	57.5	89.5	98.4	99.2	99.8	100.0	5.40	.06
Surgery	400	64.5	74.0	95.5	99.5	100.0	100.0	94.30	2.62

---

*/ Savings per patiient are calculated as total savings access all patients divided by total patients (including both those with and without savings).

Table 10

Distribution of Voluntary Assigned Patients by Percent Reduction in Beneficiary Liability Resulting From the Economic Index (Group Practice Sample)

	Total Patients	0%	<5%	<10%	<15%	<20%	<50%	Expenditures Per Patient	Savings Per Patient
General Practitioners									
Total	2,712	14.1	87.2	96.8	99.4	100.0	100.0	$15.91	$ .38
Office Visits	1,975	52.6	72.0	95.0	98.1	99.3	100.0	7.05	.17
Hospital Visits	482	45.6	89.4	95.4	97.7	97.7	100.0	40.37	.75
Surgery	250	39.6	78.0	94.4	97.6	99.2	100.0	7.53	.31
Radiology	305	42.3	95.1	98.0	100.0	100.0	100.0	7.32	.10
General Surgeons									
Total	1,840	7.0	74.8	92.9	99.7	100.0	100.0	33.02	1.51
Office Visits	755	28.6	87.4	99.2	99.7	100.0	100.0	8.37	.16
Hospital Visits	293	49.2	75.8	92.5	94.5	99.7	100.0	29.89	1.01
Surgery	814	15.4	69.9	90.3	97.9	100.0	100.0	48.98	2.69
Internists									
Total	8,427	4.1	78.1	93.7	99.2	100.0	100.0	29.36	.97
Office Visits	5,446	28.7	82.4	98.4	99.1	100.0	100.0	8.47	.21
Hospital Visits	3,001	19.0	75.5	89.8	93.7	99.5	100.0	50.33	1.90
Surgery	452	49.3	83.0	94.7	96.7	98.0	100.0	10.55	.36
Radiology	1,078	59.3	90.5	93.1	100.0	100.0	100.0	7.28	.11
Orthopedic Surgery									
Total	2,159	1.3	38.2	79.9	96.3	99.6	100.0	34.49	2.44
Office Visits	1,256	13.5	41.8	72.6	90.4	99.4	100.0	6.16	.44
Surgery	819	6.3	22.5	65.9	94.6	97.6	100.0	60.22	4.95
Radiology	955	25.6	90.6	94.0	98.0	99.7	100.0	7.81	.19
Ophthalmologists									
Total	1,436	25.0	98.5	100.0	100.0	100.0	100.0	30.82	.40
Office Visits	852	87.7	99.4	100.0	100.0	100.0	100.0	5.57	.01
Surgery	293	53.9	96.9	100.0	100.0	100.0	100.0	112.19	.99

practice general practitioners, 22.0 percent of general surgeons′ patients, 28.5 percent of internists′ patients, 21.7 percent of the patients of orthopedic surgeons, and 44.8 percent of the patients of ophthalmologists. Thus, these patients did not realize any reduction in out-of-pocket costs as a consequence of the MEI. The number of patients receiving services from physicians whose revenue from voluntary assigned services was reduced by at least 10 percent from the MEI was quite small. Only 3.8 percent of general practitioners′ patients fell into this group. 11.5 percent of general surgeons′ patients and 6.1 percent of internists′ patients, 17.9 percent of orthopedic surgeons′ patients and 3.8 percent of ophthalmologists patients fell into this category.

The percent of patients whose out-of-pocket costs for surgical procedures was not reduced as a result of the MEI was greater than the percent whose costs for all procedures was not affected. 69.7 percent of the patients of general practitioners did not have their expenditures for surgical procedures reduced as a result of the MEI. This was true for 54.0 percent of internists′ patients. Despite the fact that the largest cost savings for services of general surgeons, orthopedic surgeons, and ophthalmologists occurred for surgical procedures, a large fraction of the beneficiary population experienced no cost reductions for those services. 36.6 percent of general surgeons′ patients, 28.8 percent of orthopedic surgeons′ patients, and 64.5 percent of the patients of ophthalmologists experienced no reduction in out-of-pocket costs for surgical procedures as a result of the MEI. However, 17.0 percent of general surgeons′ patients received services from physicians whose revenue for surgical procedures was reduced by at least 10 percent as a result of the MEI. This was true for 20.1 percent of the patients of orthopedic surgeons and only 4.5 percent of the patients of ophthalmologists.

Voluntary assigned beneficiaries who received their medical services from group practice physicians were more likely than those who received services from solo practice physicians to experience a reduction in out-of-pocket costs as a result of the MEI. Only 14.1 percent of the patients of general practice group physicians experienced no revenue reduction as a result of the MEI compared to 33.8 percent of the patients of solo practice physicians. 4.1 percent of the patients of internists practicing in groups experienced no reduction in costs as a result of the MEI compared to 28.5 percent of the patients seeing internists in solo practice.

While the patients receiving services on a voluntary assigned basis experienced a potential reduction in out-of-pocket costs as a result of the MEI, patients receiving services on a non-assigned basis would experience an increase in out-of-pocket costs if the reasonable fee was constrained. Tables 11 and 12 present information on the distribution of patients by the increase in beneficiary costs resulting from imposition of the MEI.* About 13.1 percent of the patients of solo practice general practitioners received services from a physician whose program revenue was unconstrained by the MEI. This was true for 10.0 percent of the patients of general surgeons, 12.2 percent of internists' patients, 6.7 percent of orthopedic surgeons' patients, and 18.5 percent of the patients of ophthalmologists.

The average increase in burden per patient ranged from $7.81 for individuals who received services from group practice orthopedic surgeons to $.90 for patients receiving services from group practice ophthalmologists. For

---

*Patients are distributed according to the percent increase in beneficiary costs experienced by the physician providing the service. Thus, for physicians who experienced a 0-5% increase in beneficiary burden for non-assigned services, their entire non-assigned caseload was allocated to the 0-5% cost increase category.

individuals receiving services from general practitioners and internists, the largest increase in cost burden occurred in the hospital visit category; among general and orthopedic surgeons and ophthalmologists, the largest increase was in the surgical procedure category. The cost burden per patient was calculated by dividing the total increase in costs resulting from the MEI by the number of individuals who received a given type of service from our sample physicians. The average burden understates the cost increase experienced by those whose out-of-pocket costs were affected by the MEI since it includes in the denominator all patients who received services regardless of whether their costs were affected by the MEI. However, since the burden is calculated as an average burden and because there is a very wide range in the prices of surgical procedures, there is likely to be a wide range in the additional cost burden which a given beneficiary would actually experience.

Table 11 indicates that 5.3 percent of the patients of general practitioners received services from a physician for whom the cost increase to beneficiaries resulting from the MEI was at least 25 percent. This was true for 10.3 percent of general surgeons' patients, 22.9 percent of internists' patients, 25.0 percent of orthopedic surgeons' patients, and 3.6 percent of ophthalmologists' patients.

Comparing Tables 11 and 12, we get an indication of the variation in distribution of patients between solo practice and group practice physicians. In general, patients of group practice physicians were less likely than the patients of solo practice physicians to experience no increase in costs as a result of the MEI. 6.7 percent of patients of group practice general practitioners received services from physicians whose program revenue was not affected by the MEI compared to 13.1 percent of the patients who received

Table 11

Distribution of Non-Assigned Patients by Percent Increase in Beneficiary Liability Resulting From the Economic Index (Solo Practice Sample)

	Total Patients	0%	<5%	<10%	<15%	<20%	<25%	<50%	<100%	Expenditures Per Patient	Savings Per Patient
General Practitioners											
Total	36,915	13.1	53.5	71.9	82.4	90.6	94.7	99.3	100.0	$21.03	$1.43
Office Visits	32,070	29.6	61.9	67.7	78.5	85.9	90.0	98.1	100.0	12.91	.95
Hospital Visits	3,165	42.5	63.7	73.7	83.2	90.2	92.1	97.9	100.0	62.71	4.19
Surgery	4,600	39.1	60.7	72.8	80.1	85.5	89.8	96.2	100.0	12.22	1.18
Radiology	2,679	53.4	84.4	90.9	93.7	95.6	96.04	99.7	100.0	9.98	.33
General Surgeons											
Total	12,845	10.0	40.6	58.1	71.1	83.0	89.7	99.5	100.0	40.41	4.32
Office Visits	7,760	31.6	57.4	65.1	70.8	80.1	86.8	96.4	100.0	10.71	1.06
Hospital Visits	1,138	48.2	64.2	74.3	80.6	87.4	92.9	98.2	100.0	44.07	2.92
Surgery	5,1854	20.2	41.5	53.8	63.9	74.6	182.6	98.6	100.0	68.34	8.17
Internists											
Total	51,810	12.2	65.8	81.4	89.1	94.3	97.9	100.0	100.0	29.64	1.73
Office Visits	45,229	34.2	69.5	79.2	85.9	90.1	92.4	99.4	100.0	15.26	.90
Hospital Visits	6,893	40.5	68.2	77.3	84.2	89.3	94.2	100.0	100.0	81.03	5.44
Surgery	2,600	41.7	64.5	77.9	84.5	90.9	92.6	96.6	100.0	11.75	.96
Radiology	3,778	72.4	95.5	96.8	97.4	98.0	99.3	100.0	100.0	9.49	.20
Orthopedic Surgery											
Total	3,867	6.7	35.2	50.9	61.2	70.7	75.0	98.0	100.0	45.51	6.25
Office Visits	2,270	29.8	52.3	60.7	72.3	81.9	88.2	99.3	100.0	11.00	1.03
Surgery	1,284	24.9	34.9	43.2	50.9	57.3	71.2	90.4	100.0	85.33	14.80
Radiology	1,362	38.8	64.1	74.8	84.9	90.7	96.5	100.0	100.0	12.31	.73
Ophthalmologists											
Total	15,462	18.5	70.9	82.5	89.4	92.5	96.4	99.7	100.0	26.03	1.34
Office Visits	6,546	37.0	68.0	88.3	89.4	93.8	94.6	99.3	100.0	10.08	.43
Surgery	1,646	40.6	68.6	76.1	83.4	87.3	90.5	98.7	100.0	158.65	9.47

Table 12

Distribution of Non-Assigned Patients by Percent Increase in Beneficiary Liability Resulting From the Economic Index (Group Practice Sample)

	Total Patients	0%	<5%	<10%	<15%	<20%	<25%	<50%	<100%	Expenditures Per Patient	Savings Per Patient
General Practitioners											
Total	17,229	6.7	52.5	70.8	82.1	90.9	94.5	100.0	100.0	$22.43	$1.64
Office Visits	15,265	23.5	53.5	60.0	69.7	77.2	86.5	97.3	100.0	12.08	1.10
Hospital Visits	1,572	46.1	67.7	80.8	88.7	95.0	97.1	99.7	100.0	66.02	2.95
Surgery	1,961	26.4	52.6	66.5	79.5	85.6	91.9	99.8	100.0	16.72	1.89
Radiology	2,544	30.7	72.1	90.6	94.5	97.1	97.44	98.2	100.0	10.79	.49
General Surgeons											
Total	5,092	2.4	38.6	71.1	85.0	94.6	97.2	100.0	100.0	51.37	4.18
Office Visits	3,190	20.5	60.0	67.4	84.8	91.1	94.4	100.0	100.0	11.69	.90
Hospital Visits	492	54.1	73.6	90.9	92.9	96.3	96.3	99.6	100.0	46.71	1.99
Surgery	2,1494	7.4	45.5	65.9	76.6	90.8	190.9	98.7	100.0	84.37	7.72
Internists											
Total	36,456	1.4	56.9	75.1	91.5	96.2	97.5	98.5	100.0	33.28	2.25
Office Visits	31,202	18.9	66.7	74.1	81.5	91.0	98.1	100.0	100.0	14.55	.95
Hospital Visits	5,949	22.5	58.7	75.4	84.3	88.6	92.3	96.5	100.0	82.70	6.84
Surgery	2,044	32.0	66.1	80.3	84.8	88.5	95.6	97.4	100.0	13.27	.83
Radiology	5,422	60.9	95.7	96.8	98.0	98.1	98.2	99.9	100.0	10.81	.13
Orthopedic Surgery											
Total	8,933	.1	14.0	25.6	51.9	73.5	85.1	100.0	100.0	55.94	7.81
Office Visits	6,284	10.8	43.9	54.2	60.7	64.2	76.3	96.0	100.0	11.02	1.51
Surgery	3,185	.4	13.4	25.8	41.4	53.6	74.8	98.6	100.0	95.67	15.41
Radiology	4,333	16.3	65.2	83.0	84.0	89.9	96.1	99.9	100.0	12.75	.84
Ophthalmologists											
Total	10,836	8.6	72.6	86.5	96.3	99.0	99.0	99.0	100.0	30.39	.90
Office Visits	4,940	49.0	78.8	93.7	95.5	99.0	100.0	100.0	100.0	8.58	.20
Surgery	1,015	47.3	76.3	87.3	88.6	94.0	99.2	100.0	100.0	223.10	5.97

services from solo practice physicians. Virtually no patients received services from internists whose reasonable fee was not reduced by the MEI for their non-assigned services.

While an increase in beneficiary burden was more likely to occur among patients who received medical care services from group practice physicians, the patients receiving care from group practice physicians in general surgery, orthopedic surgery and ophthalmology were less likely to experience increased cost burdens of 25 percent or more. Patients receiving care from internists practicing in groups were more likely than those receiving care from solo practice internists to experience an increase in their cost burden of more than 25 percent.

IV. Conclusion

The evidence presented in this paper indicates that imposition of the MEI as a constraint on the rate of increase in prevailing fees has had some effect on decreasing Medicare program costs and that it increased out-of-pocket costs borne by some beneficiaries of services. Our analysis was based on first quarter 1978 claims of a sample of California physicans in solo practice and single specialty groups. We calculated program and beneficiary costs for services both with and without the MEI constraint. We then assessed the distribution of the cost changes across providers and beneficiaries of services.

A sizeable fraction of the physician sample did not experience any reduction in program revenue as a result of the MEI. Twenty percent of solo practice general practitioners did not have their program revenue affected at all as a result of the MEI. This was true for 25.5 percent of ophthalmologists. Physicians in internal medicine, general surgery, and orthopedic surgery were more likely to find their program revenue reduced as a result of the MEI. Group practice physicians were also more likely than their solo practice counterparts to experience a reduction in Medicare program revenue. In general, the majority of physicians experienced a modest decrease in revenue from the Medicare program as a result of the MEI. With the exception of group practice orthopedic surgeons, over 50 percent of the sample physicians experienced program revenue reductions of 5 percent or less. General and orthopedic surgeons were more likely than physicians in other specialties to experience revenue reductions of 10 percent or more.

In addition to assessing the distribution of physicians by the percent reduction in program revenue, we also looked at the distribution of mandatory and voluntary assigned patients by the percent reduction in Medicaid and

beneficiary out-of-pocket costs respectively. Over one-fourth of joint Medicare-Medicaid eligibles received services from solo practice general practitioners whose Medicaid revenue was not affected by the MEI. This was true for only 9.4 percent of the recipients of services from solo practice orthopedic surgeons and only 1.1 percent of beneficiaries who received services from group practice orthopedic surgeons.

Among voluntary assigned patients, a reduction in reasonable fees will also reduce beneficiary liability due to the coinsurance. One-third of the beneficiaries who used services of solo practice general practitioners received care from a physician for whom beneficiary liability was not reduced as a result of the MEI. The range was 44.8 percent for those receiving services from solo practice ophthalmologists to only 1.3 percent of the beneficiaries of group practice orthopedic surgeons. With the exception of those who obtained services from group practice orthopedic surgeons, the majority of beneficiaries received services from physicians for whom beneficiary liability was reduced by less than 5 percent.

The fraction of non-Medicaid eligibles taken on assignment by our sample physicians is quite low and has been declining over time. Only 13.7 percent of the services provided to non-Medicaid eligibles by solo practice general practitioners were provided on an assigned basis. The voluntary assignment rates ranged from a low of 8.6 percent for services of solo practice ophthalmologists to a high of 29.7 percent for services of group practice general surgeons. The low voluntary assignment rates of most physicians in our sample indicate that a large proportion of the impact of the MEI is shifted to non-assigned beneficiaries in the form of higher out-of-pocket costs.

The average percent increase in beneficiary liability on non-assigned services ranged from 3.0 percent for services of group practice ophthalmologists to 14.0 percent for those who received services from group practice orthopedic surgeons. Less than one-fifth of patients receiving services from our sample physicians obtained care from a physician for whom beneficiary costs did not increase at all as a result of the MEI. With the exception of those receiving services from general and orthopedic surgeons, the majority of non-assigned beneficiaries received services from a physician for whom beneficiary liability increased by less than 5 percent as a result of the MEI. However, 40 to 50 percent of the patients of orthopedic surgeons received services from physicians for whom beneficiary liability was at least 15 percent higher as a result of the MEI.

Our findings indicate that although the MEI appears to have had a relatively minor impact on program and beneficiary costs, the effects are not distributed evenly across physicians or beneficiaries. For those who received services on a non-assigned basis costs rose, sometimes by as much as 25 percent or more while for those who received services on assignment, beneficiary costs actually declined.

The results of our study were based on the assumption that in the absence of the MEI, the only factor that would change was the reasonable fee for a given procedure and physician. Billed charges, output and assignment rates were all assumed to remain constant. However, if the MEI constraint on prevailing fees were eliminated, there could be additional behavioral changes by physicians with respect to the above factors. A complete assessment of the impact of the MEI calls for a multivariate analysis of physician behavior.

Previous research by The Urban Institute has indicated a positive relationship between Medicare reasonable fees and the assigned output of physicians and physicians' assignment rates. This previous research was based on claims data from 1972 to 1975, the period during and immediately following the Economic Stabilization Program. In further research, we will refine our model of physician behavior to examine the impact of Medicare fee levels on private prices, Medicare assigned output, and the assignment rates of physicians during the period 1974-1978. We will try to isolate the relationship between the extent to which a physician's reasonable fee is constrained by the MEI and his private price and output to the program. This analysis will provide a more comprehensive picture of the full impact of the MEI on physician behavior, program costs and the beneficiary burden for medical services under the Medicare Program.

References

Gibson, Robert M. "National Health Expenditures, 1979, Health Care Financing Review, Summer 1980.

Hadley, Jack and Lee, Robert, "Physicians′ Price and Output Decisions: Theory and Evidence", Urban Institute Working Paper 998-8, The Urban Institute, Washington, D.C., April, 1978 and Paringer, L., "The Medicare Assignment Rates of Physicians: Their Responses to Changes in Reimbursement Policy", Health Care Financing Review, Winter 1980, p. 75-89.

WorldCat: The distributional effects of the Medicare economic index on phys...

OCLC 714620048 - **HEC Holdings - no other holdings**

Books	**Rec Stat** n	**Entered** 20110425	**Replaced** 20110425120101.7		
Type a	**ELvl** I	**Srce** d	**Audn**	**Ctrl**	**Lang** eng
BLvl m	**Form**	**Conf** 0	**Biog**	**MRec**	**Ctry** dcu
	Cont b	**GPub** o	**LitF** 0	**Indx** 0	
Desc a	**Ills**	**Fest** 0	**DtSt** s	**Dates** 1981,	

040		HEC ‡c HEC
041		eng
090		R728.5 ‡b .P37 1981
090		
049		HECA
100	1	Paringer, Lynn.
245	14	The distributional effects of the Medicare economic index on physicians and beneficiaries : ‡b appendix III / ‡c Lynn Paringer.
250		Draft.
260		Washington, D.C. : ‡b Urban Institute, ‡c [1981?]
300		38 leaves ; ‡c 28 cm.
490	1	Project report / Urban Institute
500		Supported by HCFA grant no. 95-P-97178/13.
504		Includes bibliographical references (leaf 38).
650	0	Medical fees ‡z United States.
650	0	Medical care, Cost of ‡z United States.
650	0	Physician practice patterns ‡z Economic aspects ‡z United States.
650	0	Medicare beneficiaries ‡x Economic aspects.
710	1	United States. ‡b Health Care Financing Administration.
710	2	Urban Institute.
830	0	Project report (Urban Institute)

006 fields for Books **Book**

Ills	**Audn**	**Form**	**Cont**	
GPub o	**Conf** 0	**Fest** 0	**Indx** 0	**LitF** 0	**Biog**

Action Status Delete Holdings _ Export **C** Label _ Produce _ Update Holdings **C** Validate _

CMS LIBRARY
3 8095 00003969 9